

IN THE CLAIMS:

2. (currently amended) A fluid exchange system for use in exchanging a used fluid with a fresh fluid in a vehicle having an automatic transmission and a fluid cooling circuit, said automatic transmission having an internal fluid pump to conduct a circulated fluid in the fluid cooling circuit, said circuit being accessed to define a pair of transmission cooling circuit ports, said fresh fluid being contained in and dispensed from a source external to said vehicle, said used fluid initially being contained within said vehicle and discharged into a receptacle external to said vehicle, said fluid exchange system comprising:

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a first fluid line selectively intercoupled to the fluid exchange system and one of the pair of transmission cooling circuit ports the fluid cooling circuit to conduct fluid from the cooling circuit;

a second fluid line selectively intercoupled to the fluid exchange system, the source, and the other one of the pair of transmission cooling circuit ports fluid cooling circuit to conduct fluid into the cooling circuit; and

a bypass fluid line intercoupled between the first fluid line and the second fluid line;
and

a selectively controllable bypass fluid line valve for controlling fluid communication between the first and second fluid lines, said bypass fluid line being selectively intercoupled between the pair of transmission cooling circuit ports, said fluid exchange system having valve defining a pair of operational conditions including: a first operational condition wherein used fluid is received into the first fluid line, passed through the bypass fluid line, passed into the second fluid line, and reintroduced into the cooling circuit while being substantially unrestricted by the bypass fluid line so that pressure within the bypass fluid line is essentially equivalent to pressure within the fluid cooling circuit, and a second operational condition wherein used fluid is received into the first fluid line and fresh fluid is received into the second fluid line and introduced into the cooling circuit.

3. (currently amended) A method for exchanging a used fluid with a fresh fluid in a vehicle having an automatic transmission, said used fluid initially being contained within said transmission, at least a substantial portion of which is subsequently discharged into a receptacle, said fresh fluid initially being contained in a source container, said method comprising the steps of:

identifying a transmission cooling circuit on the vehicle;

uncoupling a portion of the transmission cooling circuit to provide access to a first transmission cooling circuit port and a second transmission cooling circuit port, one of said transmission cooling ~~line~~ circuit ports directing used transmission fluid outwardly under pressure from the automatic transmission;

providing a fluid exchange system having a first conduit, a second conduit, and a bypass conduit providing selective fluid communication between the first and second conduits;

coupling said first and second conduits of the fluid exchange system the bypass conduit to the first and second transmission cooling circuit ports;

providing fluid communication between the bypass conduit;

energizing the transmission to flow used fluid through the first conduit, the bypass conduit, and the second conduit, said flow being substantially unrestricted by the bypass conduit so that pressure within the bypass conduit is essentially equivalent to pressure within the transmission cooling circuit;

~~selectively blocking fluid communication between the first and second conduits via the bypass conduit stopping the flow in the bypass conduit~~; and

providing the first and second conduits in fluid communication with the first and second transmission cooling circuit ports and flowing used fluid into the first conduit and flowing fresh fluid into the second conduit during an exchange procedure.

4. (currently amended) A fluid exchange system for performing a fluid exchange procedure on an automatic transmission of a vehicle having a pair of transmission cooling circuit ports, said fluid exchange system comprising:

a first conduit for communicating fluid from the transmission;

a second conduit for communicating fluid to the transmission; and

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a bypass conduit for selectively communicating fluid between the pair of transmission cooling circuit ports, ~~first conduit and the second conduit, wherein the first conduit and the second conduit are coupled into an accessed fluid circuit of the vehicle; and wherein a bypass mode of operation is established by selectively coupling said bypass conduit between the first and second conduits~~ pair of transmission cooling circuit ports so that used fluid from the fluid circuit is received into first conduit, passed through the bypass conduit, and into the second conduit so that used fluid is reintroduced into the accessed fluid circuit, said used fluid being passed substantially unrestricted through the bypass conduit so that pressure within the bypass conduit is essentially equivalent to pressure at the pair of transmission cooling circuit ports; and wherein an exchange mode of operation is established by selectively uncoupling the bypass conduit ~~between and coupling~~ the first and second conduits so that used fluid from the fluid circuit is received into the first conduit and fresh fluid is received into the second conduit and introduced into the accessed fluid circuit.

5. (original) A fluid exchange system of claim 4 further comprising a fresh fluid receptacle and a used fluid receptacle, at least one of the receptacles being removable from the exchange system for refilling or emptying purposes.

24. (currently amended) A method for exchanging a used fluid with a fresh fluid in a vehicle having an automatic transmission connected to a fluid cooling circuit, with the used fluid circulated through the circuit under power of an internal pump within the transmission, said circuit being accessed to define a pair of transmission cooling circuit ports, said used fluid initially being contained within said transmission and said fluid cooling circuit, at least a substantial portion of which is subsequently discharged into a receptacle, said fresh fluid initially being contained in a source container, said method comprising the steps of:

providing a fluid exchange system having a first conduit for communicating fluid from the transmission, a second conduit for communicating fluid to the transmission, and a bypass

conduit for selectively communicating fluid between the ~~first conduit to the second conduit~~
pair of transmission cooling circuit ports;

~~coupling the first and second conduits of the fluid exchange system into an accessed~~
fluid cooling circuit;

~~establishing a bypass condition by selectively coupling said bypass conduit between~~
~~the first and second conduits~~
pair of transmission cooling circuit ports so that used fluid from
the fluid cooling circuit is ~~received into the first conduit and is passed through the bypass~~
~~conduit and into the second conduit whereby used fluid is reintroduced into the accessed fluid~~
~~cooling circuit while being substantially unrestricted by the bypass conduit so that pressure~~
~~within the bypass conduit is essentially equivalent to pressure at the pair of transmission~~
cooling circuit ports; and

~~establishing a fluid exchange condition by selectively uncoupling the bypass conduit~~
~~between and coupling~~ the first and second conduits with the pair of transmission cooling
circuit ports so that used fluid from the fluid cooling circuit is received into the first conduit
and fresh fluid is received into the second conduit and introduced into the accessed fluid
cooling circuit.

25. (currently amended) ~~The method of claim 24, further comprising the step of:~~ A method
for exchanging a used fluid with a fresh fluid in a vehicle having an automatic transmission
connected to a fluid cooling circuit, with the used fluid circulated through the circuit under
power of an internal pump within the transmission, said used fluid initially being contained
within said transmission and said fluid cooling circuit, at least a substantial portion of which is
subsequently discharged into a receptacle, said fresh fluid initially being contained in a source
container, said method comprising the steps of:

providing a fluid exchange system having a first conduit for communicating fluid from
the transmission, a second conduit for communicating fluid to the transmission, and a bypass
conduit for selectively communicating fluid between the first conduit to the second conduit;

coupling the first and second conduits of the fluid exchange system into an accessed
fluid cooling circuit;

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establishing a bypass condition by selectively coupling said bypass conduit between the first and second conduits so that used fluid from the fluid cooling circuit is passed through the bypass conduit and into the second conduit whereby used fluid is reintroduced into the accessed fluid cooling circuit;

establishing a fluid exchange condition by selectively uncoupling the bypass conduit between the first and second conduits so that used fluid from the fluid cooling circuit is received into the first conduit and fresh fluid is received into the second conduit and introduced into the accessed fluid cooling circuit; and

measuring a fluid parameter in the bypass conduit during the bypass condition.

26. (currently amended) The method of claim 24, further comprising the step of: A method for exchanging a used fluid with a fresh fluid in a vehicle having an automatic transmission connected to a fluid cooling circuit, with the used fluid circulated through the circuit under power of an internal pump within the transmission, said used fluid initially being contained within said transmission and said fluid cooling circuit, at least a substantial portion of which is subsequently discharged into a receptacle, said fresh fluid initially being contained in a source container, said method comprising the steps of:

providing a fluid exchange system having a first conduit for communicating fluid from the transmission, a second conduit for communicating fluid to the transmission, and a bypass conduit for selectively communicating fluid between the first conduit to the second conduit;

coupling the first and second conduits of the fluid exchange system into an accessed fluid cooling circuit;

establishing a bypass condition by selectively coupling said bypass conduit between the first and second conduits so that used fluid from the fluid cooling circuit is passed through the bypass conduit and into the second conduit whereby used fluid is reintroduced into the accessed fluid cooling circuit;

establishing a fluid exchange condition by selectively uncoupling the bypass conduit between the first and second conduits so that used fluid from the fluid cooling circuit is

received into the first conduit and fresh fluid is received into the second conduit and introduced into the accessed fluid cooling circuit; and

measuring a fluid parameter in the first and second conduits during the exchange condition.

27. (previously added) The method of claim 26, further comprising the step of:

adjusting a fluid flow rate of at least the first conduit during the exchange condition to approximately match a fluid flow rate of the bypass conduit measured during the bypass condition.

28. (previously added) The method of claim 25 wherein the step of measuring the fluid parameter in the bypass conduit is accomplished with a pressure indicator.

29. (previously added) The method of claim 25 wherein the step of measuring the fluid parameter in the bypass conduit is accomplished with a fluid flow meter.

30. (previously added) The method of 29 wherein the fluid flow meter is electronic.

31. (previously added) The method of claim 26 wherein the step of measuring the fluid parameter in the first and second conduits is accomplished with a pressure indicator.

32. (previously added) The method of claim 26 wherein the step of measuring the fluid parameter in the first and second conduits is accomplished with a fluid flow meter.

33. (previously added) The method of claim 32 wherein the fluid flow meter is electronic.

34. (previously added) A method for exchanging a used fluid with a fresh fluid in a vehicle having an automatic transmission connected to a fluid cooling circuit, with the used fluid circulated through the circuit under power of an internal pump within the transmission, said used fluid initially being contained within said transmission and said fluid cooling circuit, at

least a substantial portion of which is subsequently discharged into a receptacle, said fresh fluid initially being contained in a source container, said method comprising the steps of:

providing a fluid exchange system having a first conduit for communicating fluid from the transmission, a second conduit for communicating fluid to the transmission, and a bypass conduit for selectively communicating fluid between the first conduit to the second conduit;

coupling the first and second conduits of the fluid exchange system into an accessed fluid cooling circuit;

establishing a bypass condition by selectively coupling said bypass conduit between the first and second conduits so that used fluid from the fluid cooling circuit is received into the first conduit and is passed through the bypass conduit and into the second conduit whereby used fluid is reintroduced into the accessed fluid cooling circuit;

measuring a fluid parameter in the bypass conduit during the bypass condition;

establishing a fluid exchange condition by selectively uncoupling the bypass conduit between the first and second conduits so that used fluid from the fluid cooling circuit is received into the first conduit and fresh fluid is received into the second conduit and introduced into the accessed fluid cooling circuit;

adjusting an exchange fluid parameter of the first conduit and the second conduit during the exchange condition to approximately match the fluid parameter measured during the bypass condition.

35. (previously added) The method of claim 34, wherein the step of measuring the fluid parameter in the bypass conduit includes reference to a pressure indicator in fluid communication with the bypass conduit.

36. (previously added) The method of claim 34, wherein the step of measuring the fluid parameter in the bypass conduit includes reference to a flow meter in fluid communication with the bypass conduit.

37. (previously added) The method of claim 36, wherein the fluid flow meter is electronically indicating.

38. (previously added) The method of claim 34, wherein the step of adjusting the exchange fluid parameter of the first conduit and the second conduit is achieved through a manipulation of a fluid valve in fluid communication with at least one of the first or second conduit.

39. (previously added) The method of claim 38, wherein the fluid valve is electrically operated.

40. (currently amended) An exchange procedure for changing a used fluid with a fresh fluid in a vehicle having an automatic transmission connected to a fluid cooling circuit, with the used fluid circulated through the fluid cooling circuit under power of an internal pump within the transmission, said used fluid initially being contained within said transmission and said fluid cooling circuit, at least a substantial portion of which is subsequently discharged into a receptacle, said fresh fluid initially being contained in a source container, said method procedure comprising the steps of:

providing a fluid exchange system having a plurality of conduits, including a first conduit for communicating fluid from the transmission, and a second conduit for communicating fluid to the transmission, and a bypass conduit;

accessing the fluid cooling circuit of the transmission to provide a connection access to a high pressure side and a low pressure side pair of circuit ports;

coupling the first conduit to the high pressure side, and coupling the second conduit to the low pressure side of the fluid cooling circuit bypass conduit between the pair of circuit ports;

providing fluid communication between the first and second conduits;

flowing used fluid into the first conduit and through the second conduit through the bypass conduit so that used fluid from the fluid cooling circuit is recirculated back into the fluid cooling circuit;

measuring an approximate fluid flow rate in the cooling circuit by measuring a fluid flow rate in at least one of the fluid conduits of the fluid exchange system the bypass conduit;

pumping fresh fluid at a selective fluid flow rate into the fluid cooling circuit through the second conduit while receiving used fluid from the fluid cooling circuit through the first conduit; and

equalizing the selective fluid flow rate to the approximate fluid flow rate in the cooling circuit as measured.

41. (previously added) An exchange procedure of claim 40, wherein the step of equalizing the selective fluid flow rate is achieved by operation of one or more fluid valves in fluid communication with at least one of the first or second conduits.

Cancel claims 46-50.